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FIELD BOTANISTS OF ONTARIO NEWSLETTER

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President's Message

A high-quality and accessible newsletter is an important part of our organization. The contents include reports of our outings and workshops, historical pieces, humorous sketches, book reviews, drawings and photographs, academic and technical articles and more. Lately, the flow of articles describing our field trips has slowed to a trickle. We know that this is not due to lack of appreciation of the excellent field trip program.

This is your newsletter. Use it to describe the trips that you took part in, highlight botanical topics of interest to you, describe new identification tools and communicate the inspirational qualities of plants. The style can be casual or it can be more academic. There is room for a wide range of different contributions. If you have already agreed to do a write-up of one of our trips, we would appreciate hearing from you. This is an opportunity to get your name in print, to fix in your memory the names of the plants you saw, and to tell others about your adventures. In addition to trip reports, we encourage articles on other topics. Talk to our editor, Chris Zoladeski, about your ideas.

Many members have benefitted from the *Flora of North America* publications. These volumes are the definitive taxonomic treatment of the North American flora. Various institutions and individuals have the hard-copy volumes in their collections and some of the content is available on-line. In recognition of the benefits we have received, and in support of upcoming volumes, we are pleased to sponsor an illustration for the upcoming volume including Rosaceae. The illustration is of a species that will be familiar to most members, the Barren Strawberry, *Waldsteinia fragarioides*. It is currently in VASCAN as *Geum fragarioides*, but will apparently be published as *Waldsteinia* in the new volume. It will be illustrated with *Waldsteinia parviflora*, which has been considered as a subspecies of *W. fragarioides* (subsp. *doniana*) and which occurs in the Appalachians. FBO has donated \$200 towards the cost of the illustration.

As this issue of the newsletter is being assembled, we are anticipating our Annual General Meeting in Windsor. Members will have an opportunity to visit one of the best examples of tallgrass prairie in Ontario, the Ojibway Prairie. We are taking advantage of the wonderful new Ojibway Nature Centre for our dinner and meeting. A variety of field trips will introduce you to or re-acquaint you with the plants of the prairies and savannahs of the Windsor area and the Lake Erie shoreline. Our keynote speaker, Jarmo Jalava, of the Carolinian Canada Coalition, will be talking about the Big Picture vision for conservation in Carolinian Canada. Thanks are due to Dan Westerhof who is organizing the meeting and to Jim Lane and Carol Brotman who prepared invitations and received registrations. There will be more news from the AGM in our next issue.

Mike McMurtry

On the cover: Golden-winged Warbler in Trembling Aspen, photo by Eleanor Thomson; Interrupted Fern (*Osmunda claytoniana*), photo by Mike McMurtry; Green Twayblade (*Liparis loeselii*), photo by Matt Wheeler.

Sidebar artwork: Swamp Rose-mallow (*Hibiscus moscheutos*).

The suggested standard source for scientific and common names is the Database of Vascular Plants of Canada (VASCAN): (<http://data.canadensys.net/vascan/search>).

Field Botanists of Ontario website: www.trentu.ca/fbo

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Annual memberships are \$20.00 for individuals and \$25.00 for families. Membership forms can be found on the FBO website above.

Field Botanists of Ontario (FBO) is a non-profit organization founded in 1984 for those interested in botany and conservation in Ontario.

President

Mike McMurtry
michael.mcmurtry@sympatico.ca

Vice President

Dan Westerhof
dwesterhof@beaconenviro.com

Treasurer

Bill Draper
35 Hepburne St., Toronto ON M6H 1K1
william.draper@sympatico.ca

Secretary

Nancy Falkenberg
42 Coco Avenue, Richmond Hill ON L4S 2R5
falken@rogers.com

Past President

Bill Crowley
19 Burnham Blvd., Port Hope ON L1A 4H5
fisheye@eagle.ca

Membership

Bill McIlveen
13200 Nassagaweya-Equesing Town Line
Acton ON L7J 2L7
wmcilveen@sympatico.ca

Field Trips

Leah Lefler
fbo.trips@gmail.com

Sarah Mainguy
RR #3, Guelph ON N1H 6H9
mainrod@sympatico.ca

Newsletter Editor

Christopher Zoladeski
1220 Nathaniel Cres., Burlington ON L7S 2A6
chrizoladeski@savanta.ca

Associate Editor

Michael J. Oldham, Natural Heritage
Information Centre
MNR PO Box 7000, Peterborough ON K9L 1C8
michael.oldham@ontario.ca

Contributing Editor

W.D. McIlveen (see Membership above)

Website

Melinda Thompson
plantgirl2002@hotmail.com

Directors

Julia Marko Dunn
304 MacNab Street, Dundas ON L9H 2K7
jmarkodunn@gmail.com

Natalie Dunn
ndunn@nsenvironmental.com

Troy McMullin
mcmullin@uoguelph.ca

Editor's Note

This newsletter will reach you after our Annual General Meeting in Windsor. Hopefully, many of you have signed up for the AGM trips, as they will offer a unique opportunity to visit decidedly one of the best examples of tallgrass prairie vegetation in southern Ontario.

Ojibway is truly a gem in our natural heritage network of sites.

For those who attended the AGM three years ago, Philippa Kilbourn's report of a great trip led by Bill Draper, to several properties in Norfolk County, should be a nice memory refresher (and yet another proof of quick passage of time).

The other reports in this issue are from trips organized more recently, to places such as St. Mary of Egypt Refuge (Mike McMurtry), Lost Lake Wetland (Matt Wheeler), and Komoka (Holly Stover). These locations, although botanically not in the same league as either Norfolk or Ojibway, still harbour many treasures to be discovered, and you can count on your trip leaders who take you to the hidden spots where these plants are hiding.

We are all familiar with the threats faced by our native plants, both herbaceous and - especially - woody, from various pathogens of foreign provenance that found their way into North America. The tragic case of the chestnut, and the ongoing problems of the elm, ash and butternut, are but the most heard about. Sadly, many more tree species are affected by less known factors, sometimes only partly understood in terms of their origin and the mechanisms through which they wreak havoc, initially by weakening or killing individual plants, but soon afterwards changing the composition and ecological relationships of whole ecosystems. Bill McIvlen's most interesting article will make you realize the level of threat to our native trees and communities. His call to create a central database to document the sizes and condition of the affected trees, to assist in their monitoring, is a worthwhile one.

To finish on a lighter and more positive note, our correspondent, Mr. George Bryant, proposes a simple method to assist your memory in remembering the many hundreds of species you are likely to encounter during your botanical walks. All you need is a writing instrument and willingness to sacrifice your field guide for the greater cause.

Field Trip Reports

Botany at the St. Mary of Egypt Refuge

25 May, 2013

By Mike McMurtry

Gavin Miller led a group of FBO members on an outing to explore a property operated as a not-for-profit spiritual retreat on May 25th, 2013. The trip was the first of two planned for this summer, aimed at documenting the flora of the area to help inform management of the property and contribute to the learning of visitors. The retreat is just a few kilometres north of the hamlet of Queensborough, in eastern Ontario. Queensborough, and the area surrounding it, was a centre for logging in the 1800s, and mining in the early 1900s. With the exhaustion of harvestable timber and closing of a local railway line, the economy and population declined. The Black River, a tributary to the Moira, flows through the property and through Queensborough. In the lumbering era, logs were floated down the Black to a sawmill in Queensborough. FBO members who were youths in the 1970s might remember that Queensborough was the location for the Rock Acres Peace Festival in 1971, which attracted thousands of rock music fans. The event is significant enough in the local history that it is recognized on an historic plaque installed next to the mill pond.

There were just three of us on this trip: Gavin, Eleanor Thomson and myself. The small size of the group did not detract from the experience - we had a wonderful time botanizing around the property. We started out near the residence documenting all the plants we found, native and non-native, and distinguishing, where possible, those that were planted intentionally. Near the residence was a remnant deciduous woodland with mature American Beech (*Fagus grandifolia*), Red Ash (*Fraxinus pennsylvanica*), Bur Oak (*Quercus macrocarpa*), American Basswood (*Tilia americana*), Red Maple (*Acer rubrum*), Paper Birch (*Betula*

papyrifera), and Balsam Poplar (*Populus balsamifera*). You always learn something on an FBO trip - for example, Gavin pointed out that Red Ash has branches that "swoop" up, unlike White Ash (*F. americana*), which has more horizontal branches. This was something I hadn't noticed before. Red Ash is Canada's most widely distributed ash, being common in river valleys in the prairie provinces, as well as southern Ontario's bottomlands and shorelines (Farrar1995). In the shrub layer was Beaked Hazel (*Corylus cornuta*), Alternate-leaved Dogwood (*Cornus alternifolia*) and the mellifluously-named *Viburnum rafinesquianum* (Downy Arrowwood). Morrow's Honeysuckle (*Lonicera morrowii*) and Lilac (*Syringa vulgaris*) reflected the settlement history of the site. Honeysuckle and Lilac must have been planted by virtually every settler of British descent in eastern Canada. Other shrubs were Riverbank Grape (*Vitis riparia*), Virginia Virgin's Bower (*Clematis virginiana*) and Black Raspberry (*Rubus occidentalis*).

Given the early timing of the trip, most herbaceous plants were not yet in flower. Gavin's facility in identifying plants in an early stage of development was soon evident, as was his knowledge of sedges. We found Wood's Sedge (*Carex woodii*); both it and Pennsylvania Sedge (*Carex pennsylvanica*) have red basal leaf sheaths, but those of *C. woodii* are non-fibrous and the leaves are broader and stiffer. Drooping Woodland Sedge (*Carex arctata*), Pubescent Sedge (*Carex hirtifolia*) and Pennsylvania Sedge were also in the same area. Other plants in the ground layer included Two-leaved Toothwort (*Cardamine diphylla*), Tall Meadow-rue (*Thalictrum pubescens*), Orange-fruited Horse-gentian (*Triosteum aurantiacum*), Self-heal (*Prunella vulgaris*), Woolly Blue Violet (*Viola sororia*), Virginia Anemone (*Anemone virginiana*) and the negatively-named False Solomon's-seal (*Maianthemum racemosum*). Eleanor suggested that a better common name of this species would be "Solomon's Plume" and I have to agree. We also found Bearded Shorthusk (*Brachyelytrum erectum*), Tall Buttercup (*Ranunculus acris*), Slender Sedge (*Carex tenera*), Long-stalked Sedge (*Carex pedunculata*), Virginia Stickseed (*Hackelia virginiana*), Northern

Rough-leaved Goldenrod (*Solidago rugosa*), Canada Bluegrass (*Poa compressa*), and Kentucky Bluegrass (*Poa pratensis*). But I won't list all the plants. You will have to contact Gavin for the full list.

The trip was billed as a “bioblitz” so we did not neglect the animals. We observed quite a few birds during our walk: Black-capped Chickadee, Nashville Warbler, Black and White Warbler, Chestnut-sided Warbler, American Redstart, Ovenbird, Baltimore Oriole, Great-crested Flycatcher, Blue Jay, Pileated Woodpecker and others. In a Trembling Aspen (*Populus tremuloides*), we had a wonderful look at a Golden-winged Warbler (Special Concern in Ontario, Threatened in Canada) that responded to a brief play-back of its song.

At the margins of the woodland were wooded wetlands, shrub swamps and marsh that we chose to investigate later. White Meadowsweet (*Spiraea alba*) grew at the margins of the open wetlands.

We had a relaxing lunch in the house away from the mosquitos and chatted with the director of the retreat and another visitor.

After lunch we walked a short distance over to the Black River. On the way, Gavin pointed out a small stand of plants he had previously identified as Squarrose Goldenrod (*Solidago squarrosa*), a less common goldenrod. Closer to the river, the vegetation was a mixed treed swamp merging with shrub swamp, marsh and rock barren. We found Heart-leaved Foam-flower (*Tiarella cordifolia*), Canada Fly Honeysuckle (*Lonicera canadensis*), White-grained Mountain-ricegrass (*Oryzopsis asperifolia*), Pussy Willow (*Salix discolor*), Bebb's Willow (*Salix bebbiana*), Dewberry (*Rubus pubescens*), Northern Beech Fern (*Phegopteris connectilis*), Two-leaved Mitrewort (*Mitella diphylla*), Interrupted Fern (*Osmunda claytoniana*), Royal Fern (*Osmunda regalis*), Mad Dog Skullcap (*Scutellaria lateriflora*), Bunchberry (*Cornus canadensis*) and Eastern Teaberry (*Gaultheria procumbens*).

The wetlands contained Steeplebush (*Spiraea tomentosa*), Meadow Willow (*Salix petiolaris*), Cardinalflower (*Lobelia cardinalis*), Swamp Loosestrife (*Lysimachia terrestris*), Hoary Sedge (*Carex canescens*),

Bulb-bearing Water-hemlock (*Cicuta bulbifera*), Fraser's St. John's-wort (*Triadenum fraseri*), Three-way Sedge (*Dulichium arundinaceum*), Green-fruited Burreed (*Sparganium emersum*), Purple Loosestrife

(*L y t h r u m salicaria*), Sweet White Violet (*Viola blanda*), probable Water Sedge (*Carex aquatilis*, still immature) and Eastern Marsh Fern (*Thelypteris palustris*). A Gray Treefrog was observed and later Leopard Frog and Spring Peeper. Eleanor identified Hickey's Tree-club moss (*Dendrolycopodium hickeyi*) (not prickly like Round-branched Tree-Clubmoss, *D. dendroideum*). In the water we



Official portrait of Mr. Gavin Miller. Photo: M. McMurtry.

found an exuvia of Mustached Clubtail, identified later by Colin Jones of the Natural Heritage Information Centre.

Plants of the rock barren close to the river held Early Saxifrage (*Saxifraga virginensis*), still in flower, Wild Columbine (*Aquilegia canadensis*), Crinkled Hairgrass (*Avenella flexuosa*), Poverty Oatgrass (*Danthonia spicata*) and, in the moister and shadier areas, Drooping Woodland Sedge (*Carex arctata*), Common Oak Fern (*Gymnocarpium dryopteris*) and Two-leaved Mitrewort (*Mitella diphylla*). Eleanor schooled us on the mosses there: Juniper Haircap Moss (*Polytrichum juniperinum*) and Common Haircap Moss (*P. commune*). Earlier she had showed us Rugose Fork-moss (*Dicranum polysetum*), with its “seersucker” leaves.

We walked over a granite knoll where we collected a pussytoes, difficult to identify to species in the field, and later identified as Howell's Pussytoes (*Antennaria howellii*). Normally, plants are not collected on FBO outings, but we made an exception in this case for the inventory. We checked out another wetland nearby and viewed a large Common Watersnake at close range. Unfortunately, the wetland also contained European Frogbit (*Hydrocharis morsus-ranae*), an invasive species that is spreading in Ontario. On the walk back to our vehicles, Gavin pointed out Hair Fescue (*Festuca filiformis*), a weed of dry, open areas (Voss and Reznicek 2012).

We went home satisfied after seeing many plants characteristic of Hastings County and having had an enjoyable visit to the St. Mary of Egypt Refuge. This trip was a collaboration between the participants, as many of our trips are. Thanks to Gavin for

arranging the visit and sharing his knowledge with us. There is another FBO outing to this location planned for the fall, when we will see a different array of plants in flower and visit different areas of the property. 🌿

References:

Farrar, J.L. 1995. Trees in Canada. Fitzhenry & Whiteside Limited, Markham, and Canadian Forest Service, Natural Resources Canada, Ottawa. 502 p.

Voss, E.G. and A.A. Reznicek, 2012. Field Manual of Michigan Flora. The University of Michigan Press, Ann Arbor. 990 p.

Lost Lake Wetland

8 June, 2013

By Matt Wheeler

Wetland trips are awesome! You're going to get wet, see some interesting plants and are guaranteed a solid hike! This trip did not disappoint! Dale Kristensen was our trusty group leader to provide information on the regional flora and to prevent us from getting lost on route to Lost Lake.

The FBO Lost Lake field trip took place on June 8, 2013. It was a cool day sandwiched between two hurricanes and overcast grey skies threatened rain. Dale noted we were about to explore a property with diverse flora. The site goes by many names: Lost Lake Wetland, Amherstview Wetland, Bayview Wetland, Bayview Bog, etc. He explained that, technically, it is not a bog but rather a poor fen. The limestone parent materials of the area elevate the soil pH beyond the range found in bogs. This limestone gives rise to Alvar habitat to the north of Lost Lake (possibly a future FBO trip?). Our focus was on the wetland habitats. Our goal was to make it from the road to Lost Lake, a distance of 400 m as the crow flies.

With the group assembled we embarked on our journey. The first task at hand was to scale a page wire fence. The group overtopped the fence one by one. I could tell we were in for an adventure.

Once out of the roadway right-of-way, we hiked through a regenerating forest of Red Oak (*Quercus rubra*), Sugar Maple (*Acer saccharum*), White Pine (*Pinus strobus*), Ironwood (*Ostrya virginiana*) and other common upland forest species. A 1.2 m tall shrub caught our attention and required closer examination to confirm its identity. At first it was thought to be poison ivy but its fuzzy leaves revealed it to be to be Fragrant Sumac (*Rhus aromatica*). It was a remnant from a not so distant past when open conditions prevailed. False Melic (*Schizachne purpurascens*), Downy Arrow Wood (*Viburnum rafinesquianum*), Canada Mayflower (*Maianthemum canadense*), Shagbark Hickory (*Carya ovata*), Common Juniper (*Juniper communis*) and Pennsylvania Sedge (*Carex pennsylvanica*) grew under large Red Oaks that were scattered throughout the regenerating forest.

Moving down a gradual slope towards the wetland we encountered Balsam Fir (*Abies balsamea*), Sarsaparilla (*Aralia nudicaulis*), Barren Strawberry (*Geum fragarioides*, aka *Waldsteinia fragarioides*), Large-leaved Aster (*Eurybia macrophylla*, aka *Aster macrophyllus*), Black Snakeroot (*Sanicula marilandica*), Soapberry (*Shepherdia canadensis*) and Sharp-leaved Hepatica (*Anemone acutiloba*).

The upland forest floor, leaf-littered and sparse with undergrowth, abruptly changed to a lush carpet of green, interspersed with sporadic pools of standing water, as we entered the swamp. Red Maple (*Acer rubrum*) and Silver Maple (*Acer saccharinum*) dominated the swamp, with the occasional White Cedar (*Thuja occidentalis*) and Yellow Birch (*Betula alleghaniensis*) trees. Plant diversity was high within the hummocks and hollows of this swamp.

Reed-canary Grass (*Phalaris arundinacea*), Winterberry (*Ilex verticillata*), Sensitive Fern (*Onoclea sensibilis*) and Marsh Fern (*Thelypteris palustris*) were observed. Marsh Fern has light green



All smiles when lost in a wetland. Photo: J. Lane.

leaves and dark black twisting stalks which give the plant a disheveled appearance. The bright yellow flowers of Tufted Loosestrife (*Lysimachia thyrsiflora*) drew the attention of our group.

Most of the group had made its way across a small beaver dam when someone noticed Green Twayblade (*Liparis loeselii*, aka Fen Orchid or Loesel's Twayblade). It is described in Michigan Flora (2012) as "An inconspicuous orchid, usually distinctly yellow-green throughout..." or as our trip attendee remarked with a twinge of sarcasm "It's a brilliant orchid; flaming light green." This specimen blended into the surroundings where all of the group members passed it by, but someone spotted the plant while waiting for others to cross the beaver dam. Showy Lady's-slipper (*Cypripedium reginae*) was known to this tract of wetland but was not seen during this outing.

A number of sedge species were observed throughout the trip. We saw both *Carex interior* and *Carex radiata*. These species are similar looking and can be identified as follows: *C. radiata* has staminate floret above pistillate floret, whereas *C. interior* has staminate floret below pistillate floret. *Carex pseudo-cyperus* was observed and it looks similar to *Carex comosa* (which we didn't see) but it hurts when you squeeze the spike of the first because it has straight perigynia beaks, whereas in the second, perigynia beaks



Getting through one of the easier spots. Photo: M. Wheeler.

spread like a Texas-longhorn (Credit A.A. Reznicek during a 2014 sedge course). Other carices spotted included: *C. stipata*, *C. crinita*, *C. disperma* and *C. leptalea*.

Midway through the trip everyone was sloshing about in haphazard zig-zag patterns. It was tough to tell if they were trying to choose the path with the shallowest water or if their botanical curiosity was pulling them from one interesting plant to the next. The group had waded through enough water that everyone was evaluating their choice of footwear. Those wearing running shoes and rubber boots had soakers. The hip-wader crowd had dry feet. Regardless of footwear performance, everyone was having a great time!

A good number of ferns were observed on route to Lost Lake: Spinulose Woodfern (*Dryopteris carthusiana*), Robert's Fern (*Gymnocarpium robertianum*), Crested Shield Fern (*Dryopteris cristata*), Cinnamon Fern (*Osmunda cinnamomea*), Royal Fern (*Osmunda regalis*), Sensitive Fern (*Onoclea sensibilis*), Marsh Fern and Lady Fern (*Athyrium filix-femina*).

We came across Water Hemlock (*Cicuta maculata*) which is "usually considered to be the most violently poisonous plant in temperate North America, for both livestock and humans" (Michigan Flora Online, 2011). We took only photos and left it untouched.

As our group approached Lost Lake, the swamp canopy began to thin out



Lost Lake Wetland. Photo: J. Lane.

and fen and bog plants began to appear. Labrador Tea (*Ledum*, or *Rhododendron groenlandicum*) was in flower, Leatherleaf (*Chamaedaphne calyculata*), Pitcher Plant (*Sarracenia purpurea*), Bog Bean (*Menyanthes trifoliata*), False Mayflower (*Maianthemum trifolium*), and Tamarack (*Larix laricina*) were observed. Other wetlands plants spotted were great Water Dock (*Rumex orbiculatus*), Black Chokeberry (*Aronia melanocarpa*), Alder-leaved Buckthorn (*Rhamnus alnifolia*, our native buckthorn!), Common Bladderwort (*Utricularia vulgaris*), Turtle Head (*Chelone glabra*), Frog's Bit (*Hydrocharis morsus-ranae*), Blue Flag (*Iris versicolor*) and Swamp Milkweed (*Asclepias incarnata*).

Our group wandered back through the wetlands to reach the road. Almost everyone was dumping out their boots and ringing out their socks. It was a fantastic FBO trip. A big thanks to Dale Kristensen for being the trip leader on this outing. 🌱

Expanses of Komoka

31 May, 2014

By Holly Stover

"The land is much more interesting than may appear (on a map) because of the grandness of the relief within it and the geomorphological history of it. The [Thames] river is deeply entrenched and forms therefore a beautiful valley with steeply sloping and heavily wooded valley sides interspersed with raw and exposed cliff-like banks to 125 feet in height. To add to the interest of this wilderness river core, the land to the southeast of the river is higher than that to the north by as much as 60 feet offering contrasting impressions depending on which side of the river one is on. Looking south across the river one is looking into a forested wall. Looking north across the river, one has the long bird's-eye view of the land and the feeling of great height, a rather unique aspect in the flat lands of Southwestern Ontario."

Osmond Langtvet, A Proposal for the Establishment of a Wilderness Park Straddling the Thames River between the Kilworth and Komoka Bridges, Delaware and Lobo Townships, Middlesex County, Ontario, 1964." (Excerpt from the Komoka Park Management Plan, 2010)

Doctor Langtvet was a geography professor at Western University and helped establish Komoka Provincial Park, the site of our spring FBO field trip. He first strongly advocated for protection of the area's unique ecological features that continue to be highly valued today. Komoka's natural heritage treasures include the Thames River, designated a Canadian Heritage River in 2000, its provincially significant geological features and the 685 plant species, a large proportion Carolinian, found within the park and surrounding area. During the 1970s there was an initiative to establish near-urban provincial parks in southern Ontario, which resulted in the establishment of Bronte Creek Park in Oakville. Many years later, after a long and difficult

process of land acquisition, Komoka Park was established in 1989, covering an area of 189 hectares, representing the largest natural area from the downtown core of the City of London. The park is one of the major remaining tracts of forest along the Thames River in southern Ontario.

As we met for the day at the trail head, we began to learn about the mosaic of habitats and history. Part of the property was abandoned from cultivation, and we observed the succession from farmland to old field. An old farmer's pond had become lush with cattail (*Typha*), Red-osier Dogwood (*Cornus stolonifera*) and other vegetation that disguised its former use. Hawthorns (*Crataegus*) stood out on the landscape of the old fields surrounding the forest and were in full flower. Also, Autumn Olive (*Elaeagnus umbellata*) made a common and abundant appearance throughout the site, perhaps the most abundant naturalized population I have ever seen. However, few floristic groups could rival the diversity of Honeysuckles (*Lonicera* spp.) observed that day, both native and non-native.

Cathy Quinlan led us through the natural heritage features of the landscape as we strolled through grasslands, shrublands, river floodplain forest, valley terraces and slopes, Hemlock (*Tsuga canadensis*) forest and open fields. Brenda Gallagher provided us with a highly informative ethnobotany tour. I cannot provide all of the details in this summary, but during the walk we were given a marvelous overview of interesting facts and medicinal properties of almost every species we passed. It was terrific. It is an encouraging reminder to go beyond simple ID-recognition and to learn about the species. Brenda challenged us to "spend time with plants" pick one plant and just spend an hour with it and get to know it, your knowledge will be much richer.

During the walk she encouraged us to taste plants to experience their different tastes and effects. Yarrow (*Achillea millefolium*) was among Brenda's top ten medicinal plants. The flowers can be used in warm baths to treat colds and the leaves can be used to stop bleeding. The genus name is derived from Achilles, the mythical Greek warrior, who used Yarrow to treat battle wounds. Another favourite was Stinging Nettle (*Urtica dioica*), whose large patch of about 10 square meters we found on the trail. In spring (before the plants age and flower) the leaves can be picked and boiled and the water drunk as a tea that improves iron absorption or prepared as a tincture to treat allergies. Brenda is also writing a book on the folklore and spirit of trees and teaches small, informal workshops.

Some of the day's floristic highlights were observing Yellow Lady's Slipper (*Cypripedium parviflorum*) in bloom and a rich fen off of the forest trail. The fen appeared in an opening in the forest after we saw the Yellow Lady's Slipper along the trailside. The edges were dominated by Tamarack (*Larix laricina*) and a diversity of species including Greenish Sedge (*Carex viridula*), Montane Blue-eyed-grass (*Sisyrinchium montanum*), Marsh Fern (*Thelypteris palustris*), Skunk Cabbage (*Symplocarpus foetidus*) and Swamp Buttercup (*Ranunculus hispidus*).

What a joy to see so many species and habitats in one day and how grateful are we that this area is still intact. I am thankful

to Dr. Langtvet and all those responsible for establishing this protected area. The day was rich with species, ecology and ethnobotany thanks to our field trip leaders who encouraged our love and admiration of plants. 🌱

Acknowledgements:

Philippa Kilbourn kindly shared notes for this report.

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Ontario Parks. 2010. Komoka Park Management Plan [online]. Available from http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@parks/documents/document/mnr_bpp0268.pdf [accessed 1 July 2014].

Lambrecht, Ferguson, Chambers and Draper

10 September, 2011

By Philippa Kilbourn

This was one of four trips organized as part of the 2011 FBO Annual General Meeting, held in Simcoe. On a warm and sunny September day Bill Draper, FBO Treasurer, guided us through three properties in Norfolk County: Lambrecht, Ferguson, and Chambers, all located in the Big Creek watershed.

Bill kicked off the trip with aplomb by introducing a special guest: Wendy Cridland, Program Manager for the Nature Conservancy of Canada (NCC) whose responsibilities in Southwest Ontario include Windsor, Niagara, Pelee, Essex, Southern Norfolk, and Port Franks on Lake Huron. Who better than Wendy to sketch the management landscape for what we were about to explore?

The Nature Conservancy of Canada is, she explained, very active in Norfolk County, where it secures and manages strategically-located natural areas. In six years alone, 500 acres, including the Backus Woods, had been purchased or acquired. In terms of 'property management', a typical plan might include: a) a restoration of agricultural lands; and b) connecting up disparate properties. To accomplish restoration, the NCC works with the St. Williams Ecology Centre, a major native plants nursery in the area. On those acquired properties where farmers have levelled the land, the NCC aims to recreate original topography through retention ponds, sand ridges, oxbow scars, waterfowl habitat restoration, in addition to creating public access. In terms of connecting properties, the Garfield Weston Foundation had recognized a real need in the Norfolk area and funded the purchase of 4200 acres in total. Thankfully, Wendy observed, "there is not too much development pressure at this time" (2011). To conclude her remarks, Wendy complimented Bill Draper as one who "knows these areas better than anyone".

With much anticipation we set off to explore the Lambrecht Property. The tally of species was long, reflecting the richness of local flora and diversity of habitats: Round-leaved Cat Brier (*Smilax rotundifolia*), threatened in Ontario, present in Essex, Niagara and Norfolk (Don Sutherland found a large regional population, but these populations are not reproducing); Hairy-nerved Carrion Flower (*Smilax lasioneura*); Common Pokeweed (*Phytolacca americana*) found in fruit; Great Blue Lobelia (*Lobelia siphilitica*); Slender-leaved Agalinis (*Agalinis tenuifolia*); Wiry Panicgrass (*Panicum flexile*); Grass-leaved Goldenrod (*Euthamia graminifolia*) with its very narrow leaves and flat terminal inflorescences; Canada Rush (*Juncus canadensis*) whose seeds are minute like dust; and Spicebush (*Lindera benzoin*), easily recognized by its red berries and the characteristic strong scent of its crushed leaves.

On the margins of swamp, where the peat was deeper than 40 cm, Bill pointed out some fruiting Black Gum trees (*Nyssa sylvatica*), which overwinter on the margins of the wetland and manage to germinate when conditions are just right, namely the swamp temporarily dries out. Another interesting Carolinian species was Shining Sumac (*Rhus copallinum*), with its winged leaf petiole, growing underneath Black Oak (*Quercus velutina*). We also saw Sassafras (*Sassafras albidum*), with its aromatic leaves, and Tulip Trees (*Liriodendron tulipifera*), whose shade-intolerant saplings, once started, grow quickly to eventually form a super-canopy. Of the two species of dogwood that we saw at that location, the less interesting one was Silky Dogwood (*Cornus anomum*), easily identified by its pubescent young twigs and brown pith. The view of the rare Eastern Flowering Dogwood (*Cornus florida*), on the other hand, much excited the group. The specimen we found was large, almost tree-sized, at 10.8 cm diameter. Due to the anthracnose fungus, its population in Ontario has dwindled. At the field edge, in a transition zone between upland forest and swamp we observed Common Greenbrier (*Smilax hispida*), which climbs like a rose and is armed with sharp spines on a squarish stem.

Farther up the trail, we entered a deciduous swamp, where Royal Fern (*Osmunda regalis*) grew in abundance, in proximity with the closely related Cinnamon Fern (*Osmundastrum cinnamomeum*). Bill explained the difference between that species and Interrupted Fern (*Osmunda claytoniana*). The Cinnamon frond is covered by rusty pubescence easily collected as one rubs one's fingers along the stalk, whereas Interrupted does not have this characteristic. The swamp was dominated by maple and ash. The former was a hybrid between Silver Maple (*Acer saccharinum*) and Red Maple (*Acer rubrum*), known as Swamp or Freeman's Maple (*Acer x freemanii*). Although the species produces a profusion of seeds, most of them die during prolonged inundations and, locally, there was perhaps the added effect of Royal Fern suppressing germination. The smaller trees in the community were those of the very common White Elm (*Ulmus americana*), which can be distinguished from rarer Slippery Elm (*Ulmus rubra*) by examining the bark. It displays darker and whiter layers when broken, whereas Red Elm's bark is uniformly brown. In the low-lying and long-flooded portions of the swamp, Bill pointed to a large specimen of Pumpkin Ash (*Fraxinus profunda*) whose trunk base had bulged. It differs from the "regular" Green Ash

(*F. pennsylvanica*) by its larger leaves, but most importantly by long fruits that look like canoe paddles! Bill informed us that all of our ash species, except perhaps for the southerly Blue Ash (*Fraxinus quadrangulata*), are under threat from the Emerald Ash Borer (Blue Ash appears to have some resistance). An interesting vine at that location was Wild Yam-root (*Dioscorea villosa*).

After lunch we headed for the second property – Ferguson, where vegetation and flora were much different. Right at the road, we spotted Pale-leaf Wood Sunflower (*Helianthus strumosus*) and American Hazelnut (*Corylus americana*). As we walked in, two other shrubs caught our attention: Swamp Rose (*Rosa carolina*) and Northern Dewberry (*Rubus flagellaris*). We then spent some time discussing oaks, namely the two species that we found: Hill's Oak (*Quercus ellipsoidalis*) and White Oak (*Quercus alba*). Bill explained that Hill's Oak does not usually shed its limbs with resultant look of straggly stubs on the main trunk. As for White Oak, it has somewhat limited distribution. In the early 1700s, the Navy felled many oak trees for masts. Then, in the 1790s, the settlers cleared oak forest to create pastures and other agricultural land. With the advent of railways (1830s – 1840s) oak trees often ended up as railway ties.

At this point in the afternoon we descended a steep slope into a moist Eastern Hemlock (*Tsuga canadensis*) mixed forest where Bill pointed out: Yellow Mandarin (*Prosartes lanuginosa*, - he noted a red drupe of this Carolinian species); Canada Horse-Balm (*Collinsonia canadensis*); Christmas Fern (*Polystichum acrostichoides*) on the moist wooded slope of the valley; Plantain-leaved Sedge (*Carex plantaginea*); Long-stalked Sedge (*Carex pedunculata*); Beech-drops (*Epifagus virginiana*) indeed growing on the root of a Beech tree (*Fagus grandifolia*); Tall White Rattlesnake-root (*Nabalus altissimus*) which can be identified by the number of florets (5-6) in the head, in keeping with pale brown pappus; and Indian Cucumber-root (*Medeola virginiana*) with its fruiting blue black berries.

As we walked along the base of the slope, Bill noted several species associated with wet habitats, such as: Crested Wood Fern (*Dryopteris cristata*); Roundleaf Goldenrod (*Solidago patula*) with its scabrous leaves; Common Buttonbush (*Cephalanthus occidentalis*) growing along the shores of the creek; Hairy Swamp Loosestrife (*Decodon verticillatus*); Scouring-rush (*Equisetum hyemale*) at water's edge; and Wood Nettle (*Laportea canadensis*).

The final site of the afternoon was the Chambers Property, where the following species were observed: Saskatoon (*Amelanchier alnifolia*) unfortunately not fruiting; Early Lowbush Blueberry (*Vaccinium pallidum*), a savannah plant that prefers acidic soils, common here thanks to the oaks and pines; Black Oak (*Quercus velutina*); Large-leaved Aster (*Eurybia macrophylla*) growing under the canopy of Sugar Maple (*Acer saccharum*); and Red Maple (*Acer rubrum*), both shade-tolerant with the latter especially dominant in Norfolk. A big thrill was to find three specimens of American Chestnut (*Castanea dentata*), the largest of which measured 49 inches in diameter! (Bill pointed out the epicormic branching, from under-the-bark dormant buds that become active when top branches are removed or

die back),

We thanked Bill for a very informative outing and the opportunity to visit many diverse habitats with their rich floras. 🌱

Botanical roots

A call to routinely measure and document large trees under threat

By W.D. McIlveen

When I was 12 or 13, I was a member of the local 4-H Club. One of the perks of being a member was that they took you on a bus trip to several locations, usually with some connection to agriculture. On this one occasion, they took us to visit a farm though I can't recall the location. While the main part of the visit involved discussions of the cattle and agriculture, there is one thing about that visit that stands out for me; namely, the elderly farmer brought out something that he had created as a hobby. It consisted of a large disk cut from a tree trunk. On that disk, he had small hooks and, on those hooks, he had hung small samples of wood cut as cross sections of branches or stems of many tree species. One of these samples was a cross section of an American Chestnut. He went on to explain that the species had been wiped out by the Chestnut Blight. I had never heard of such a thing and hadn't the slightest notion then that plant diseases and plant health might become the central part of my professional life.

It was about two years after learning about Chestnut Blight that I heard about the Dutch Elm Disease. I was informed that the disease was coming and that all of the elms were going to die. On hearing this, I looked across the fields to where I knew there were several very magnificent elm trees, trees under which the cows would seek shade in the hot summer afternoon. I tried to imagine what it would be like without such trees that were everywhere in those days. But the disease did arrive in earnest in Ontario around 1967 and I recall looking across fields south of Highway 401 and seeing crews cutting and burning dead elms in the fence rows as I was on my way to my university classes (Photo 1).

Since those days, a number of other significant diseases and pests have made their presence known. While there are many such agents that afflict our trees, they are native and the trees are mostly able to cope with them. The article deals with those agents that are not indigenous to Ontario and whose presence has caused or has the potential to cause great harm to the

natural and urban forest tree community. The list of known and potential agents is included in the following table.



Photo 1. Mount Nemo area with its large elm trees in rural fence rows in 1969.

Tree Species	*	Common Name	Latin Binomial	Year
Eastern White Pine	F	White Pine Blister Rust	<i>Cronartium ribicola</i>	1900
American Chestnut	F	Chestnut Blight	<i>Cryphonectria parasitica</i>	1920
Butternut	F	Butternut Canker	<i>Sirococcus clavignenti-juglandacearum</i>	1960
Elm species	F	Dutch Elm Disease	<i>Ophiostoma ulmi</i>	1967
	F	Dutch Elm Disease	<i>Ophiostoma novo-ulmi</i>	1967
	I	European Bark Beetle	<i>Scolytus multistriatus</i>	1967
American Beech	F	Beech Bark Disease	<i>Nectria coccinea</i> var. <i>faginata</i>	1985
	F		<i>Neonectria ditissima</i>	1985
	I	Beech Scale	<i>Cryptococcus fagisuga</i>	1985
Ash species	I	Emerald Ash Borer	<i>Agrilus planipennis</i>	2002
Flowering Dogwood	F	Dogwood Anthracnose	<i>Discula destructiva</i>	2004
Eastern Hemlock	I	Hemlock Woolly Adelgid	<i>Adelges tsugae</i>	2013
Black Walnut	F	Thousand Cankers Disease	<i>Geosmithia morbida</i>	-
	I	Walnut Twig Beetle	<i>Pityophthorus juglandis</i>	-

Pine species	I	Western Pine Beetle	<i>Dendroctonus ponderosae</i>	-
Oak	F	Sudden Oak Disease	<i>Phytophthora ramorum</i>	-
Oak	F	Oak Wilt	<i>Ceratocystis fagacearum</i>	-

* Insect or Fungus

The first of the notable invasive pests was White Pine Blister Rust, caused by the fungus *Cronartium ribicola*. While it still remains as a common problem after 100 years, the initial fears for the Pine proved unfounded. By comparison, *Cryphonectria parasitica* ravaged the huge stands of American Chestnut throughout the eastern United States killing billions of trees. The disease reached Ontario in about 1920 several years after its initial appearance in the New York city in 1904. The consequences for the small part of the Chestnut population that extends into the Carolinian zone in Ontario were the same as for the rest of the species range. While the disease still persists and attacks the small trees that grow from the original root stocks, there is some hope that the Chestnut will continue to grow. Even the most optimistic hopes would require that many decades would pass before any significant Chestnut forest returns. A realistic forecast would be that the once great forests can be saved as small numbers of trees though they will continue to be damaged by repeated attacks of the disease.

The Dutch Elm Disease became established in Ohio in 1931. It spread into eastern Canada during the Second World War and then into Ontario in 1967. For many years, it was believed that the disease was caused by the fungus *Ophiostoma ulmi* that was carried mainly by the introduced European bark beetle (*Scolytus multistriatus*) and sometimes by the native elm bark beetle *Hylurgopinus rufipes*. It has been more recently realized that a second but related fungus *Ophiostoma novo-ulmi* has caused severe damage as well. It is suspected that a third, possibly a hybrid between the two fungi, is also involved. Once the disease reached Ontario, the vast majority of the huge old elms were killed. The tree species remains with us today, however. Sometimes large old trees are discovered. These trees may simply be lucky ones that have by good fortune escaped the infection; or, they may also have some natural resistance to the fungus. These trees offer the best possible chance for a new line of trees to become re-established in Ontario. These are being studied and subjected to a breeding program at the University of Guelph with the ultimate goal of releasing disease-resistant trees across the Province. Until that goal is released, the elm population will remain as a large scrubby type of tree. Large populations become established, grow to a modest size, and then get subjected to new rounds of infection. The consequences of this pattern means the elms will seldom get to the majestic size that they regularly attained days past.

At the present time, we are witnessing wholesale attacks on other species. Beech Bark Disease is caused by either of two related fungi (*Nectria coccinea* var. *faginata* or *Neonectria ditissima*) following a bark infestation of the scale insect *Cryptococcus fagisuga*. Dogwood Anthracnose caused by *Discula destructiva* has

killed many of the native Flowering Dogwoods. The Butternut Canker (*Sirococcus clavigignenti-juglandacearum*) has been with us for even longer than the Dutch Elm Disease, yet has remained largely out of public view. The general public is most aware of the impending destruction of ash trees everywhere by the Emerald Ash Borer (*Agrilus planipennis*).

Several other unwelcome agents are waiting in the wings. One of these, the Hemlock Woolly Adelgid (*Adelges tsugae*) was recently discovered in Ontario so it has arrived. The others have yet to appear in the Province. The Thousand Cankers Disease (*Geosmithia morbida*) carried by the beetle *Pityophthorus juglandis* is highly destructive to Black Walnut. The Western Pine Beetle (*Dendroctonus ponderosae*) has shown signs of spreading eastward from B.C. and could potentially cause great damage in the pine forests of northern Ontario. Oaks are at risk of infection by the wilt fungi *Phytophthora ramorum* and *Ceratocystis fagacearum*. Only time will tell if these and other unknown potential pests ever become established in Ontario but the risk is definitely not zero.



Photo 2. FBO members measuring a large Butternut on a field trip at Palermo, August 8, 2004.

It was the Emerald Ash Borer that prompted the preparation of this article. On further reflection, it was realized that the same idea had application for any of the known or potential pest organisms. That idea is that we should be documenting the location and size of large trees while they remain on the landscape. The large old American Chestnuts are gone so we cannot hope to document their individual characteristics. Most but not all of the elms have disappeared but we still have an opportunity to document the large ash, and beeches for example, before they too disappear. Ashes in particular have a tendency to fall within a short time after they have been killed.

As people that are frequently out in the field, Field Botanists have a great opportunity to document the presence of notably-

large individual trees (Photo 2). The basic information that should be recorded includes species, geographic coordinates which can be done easily with a hand-held GPS unit, and the diameter at breast height, an easy standard forestry parameter. The date and the name of the observer are easy complimentary bits of information. Ideally, descriptions of the tree condition would be useful extra information. Tree height would be good information to collect though this involves a bit of extra work that would be more time-consuming to collect.

At this time, there is no central repository for such data for most species. By contrast, this kind of data is being collected by MNR in relation to Butternut, mainly because it is a species-at-risk and breeding and selection of desirable genetic stock for the species is currently being done. Similarly, information on large elms is collected during the nomination of trees to utilize in the breeding programs at the University of Guelph. In time, collection of this kind of data may be taken on by some other agency. That agency has yet to be determined. Still, there is no reason why the information could not be collected by people in the field right now while there is an opportunity to do so. Sometime down the road, there is little comfort from saying "We should have collected the information when we had the chance".

Some information already exists for a limited number of large trees. For example, the Ontario Forestry Association maintains a record of the largest trees in the Province. That list is available on the internet [1]; however, except for one recent (2010) record for Pitch Pine, the rest of the records on the Honour Roll are at least 25 years old. Similarly, the Ancient Forest Exploration and Research centre at North Bay maintains a list [2] of the oldest known trees in Ontario. Other comparable lists have been developed for specific areas including Waterloo [3], Burlington [4], and [Timmins] [5]. A comparable list was prepared for the City of Guelph though I am unable to locate my copy of that report at present. A problem with these inventories is that they mostly provide but a single record of the largest or oldest of a particular species. I have myself prepared inventories of the larger trees in the Rattray Marsh Conservation Area in Mississauga [6] but in the summary for that [7], only the largest were mentioned. A problem with a single record for a species becomes apparent when the large old tree dies or is lost. There is no heir apparent to fill the role on the roll. The recommended activity for routine documentation of large trees would support the preparation of Honour Roll trees at various geographic levels (e.g. county, city, conservation area). In time, the data could provide a great resource for distribution

Fabulous Fall Fungi – 2014

mapping and other purposes yet to be realized. The suggested data collection is definitely not an attempt to find the largest trees in the province or within a given geographic area. Rather, it is to collect information indicating the potential size of individuals within populations of the respective species in different places. The main thing is to immediately get the data in hand (or computer memory) so that they can be shared with some appropriate agency at some date in the future. It is hoped that such an agency will appear sooner rather than later. 🍄

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Ontario Flora Made Simple

What do *Isotria verticillata*, *Trillium flexipes*, *Triphora trianthophora* and *Solanum rostratum* have in common. Well actually, nothing to you but to me, these are all Ontario plants which I have not seen in the past thirty years. How do I know? I recorded the date and location, first in the Peterson Wildflower Guide and, after 1977, in Newcomb's Wildflower Guide. I made another conversion in 1998 when the massive Ontario Plant List was published. Now out of print, this tome listed all Ontario plants including over 3000 species of gymnosperms and angiosperms ("seed plants").

But Ontario is a big province—many plant species are restricted to northern Ontario, particularly the Hudson and James Bay coasts or north-western Ontario, areas seldom visited by field botanists. Southern Ontario botanists have now been granted a reprieve. The just-published Voss and Reznicek: Field Manual of Michigan Flora treats over 2,700 species of native or naturalized plants, probably 95% of which also occur in adjoining Ontario. (If you think 3,000 plant species is a lot to learn, pity the poor California botanist who must deal with over 5,300 native species plus 1000s of introduced ones.)

This is still a lot of species. An Ontario bird-watcher is expected to recognize 400 bird species, probably the limit for most people. So, how does a botanist sort out several thousand species? Very simple. Make a note. When you see a plant for the first time, record the date and location in your Michigan Flora. Over time, as you recall the location and species, you will gradually come to grips not just with the plant species but also their families, both ones you have laid eyes on and ones yet to be viewed.

If you are reluctant to mark up your Michigan Flora, an alternative and probably the best Ontario wildflower field guide now available is *Wildflowers in the Field and Forest: A Field Guide to the North-eastern United States*: S. Clemants and C. Gracie, 2006.

George Bryant, g.bryant@sympatico.ca